

Dual Head Toothbrush

5 This invention relates to a dual headed toothbrush comprising an interdental brush.

In order to prevent the build up of dental plaque and consequential tooth decay and gum disease, dentists recommend regular and thorough cleaning together with frequent dental check-ups.

10 The most common tool in the dental hygienists artillery is the toothbrush. The bristles are sturdy enough to dislodge plaque and food and keep teeth clean without damaging the gums. However, there are some areas which are hard to clean with a toothbrush alone, 15 such as between teeth (known as 'interdental spaces'). Additionally, the wearers of dental appliances such as braces and bridges can find it hard to clean around these.

20 In order to assist the cleaning of these areas interdental toothbrushes are known. These brushes comprise a single narrow stem from which bristles protrude outwards, usually in a helical or circular pattern. The brush is therefore narrow enough to fit into areas inaccessible with a larger brush.

25 While there are many examples of stand alone interdental brushes there have recently been attempts to incorporate such brushes into a standard toothbrush. This provides the user with the benefits of interdental cleaning without the expense and clutter of an 30 additional toothbrush.

Japanese Patent Application No 2000-139964 discloses a toothbrush head with retractable interdental brushes interspaced between the ordinary bristles of the toothbrush head. These can be used to give a more 35 thorough clean, in particular around the molars. However, the width of the toothbrush head and the fact that the interdental brushes are surrounded by bristles

limits the manoeuvrability of the brushes. This can make it hard to use it to its full effect, for example when cleaning around braces.

Several toothbrushes have been created wherein an
5 interdental brush is housed within the body of the toothbrush. This can be rotated or otherwise manipulated when necessary so that it protrudes from the end of the toothbrush body opposite the head (the tail end). This allows the brush to be used without
10 interference from the main toothbrush head. Examples of such toothbrushes can be found in Japanese Application Nos 2002-336051, 2002-306245 and 2002-28029.

All of these devices require moving and/ or removable parts to allow the interdental brush to be
15 used, which are liable to get broken or lost. In particular, during use pressure will be placed on the interdental brush from a number of different directions as it is manoeuvred about the mouth. This strain is transferred to the connecting parts of the brush which
20 may either knock the interdental brush out of its fixed operational position or break it entirely.

Further, the greater complexity of the design of such toothbrushes adds to the manufacturing costs. Such cost will usually be transferred to the user and may
25 discourage people from buying the brushes, despite the increased benefit to their teeth. The complexity of the design may also harbour undesirable debris in the spaces for the moving parts.

There therefore exists a need to create a
30 toothbrush containing an interdental brush which does not have the above disadvantages.

According to one aspect of the present invention there is provided a toothbrush body comprising integral head, body and tail portions wherein the head portion
35 comprises indents for the insertion of bristles and the tail portion is inclined relative to the body portion and comprises an indent for receiving the base of an

interdental brush.

5 The angled tail portion allows ease of positioning during use and also allows the force exerted on the interdental brush to be absorbed by the bend in the body portion.

10 The interdental brush and bristles are attached prior to sale so that the user receives a complete toothbrush with dual brushes; a main brush at the head of the toothbrush and an interdental brush protruding from one side of the tail portion.

15 From another aspect the present invention provides a toothbrush comprising integral head, body and tail portions wherein the head comprises bristles and forms the main brush and the tail portion comprises an interdental brush and is inclined relative to the body portion.

20 Preferably the tail portion is inclined towards the front side of the body, the front side being the side of the toothbrush from which the bristles of the main brush protrude. The interdental brush then preferably protrudes from the rear side of the tail portion.

25 In this way, the interdental brush is kept removed from the user's hand whilst the main brush head is being used. In addition the inclined tail portion provides a rest for the back of the user's hand and increases comfort when using the main brush. Further, this shape allows the toothbrush to be packaged more compactly as both the tail portion and the main brush's bristles protrude in the same direction whilst the interdental
30 brush does not extend much (if at all) past the rear side of the toothbrush.

35 The interdental brush is preferably provided with a shield so as to protect it during non use, especially when lying on a bathroom surface or in a toothbrush holder.

 Preferably the rear portion is inclined between 10-70°. More preferably it is inclined between 35 and 55°.

From yet a further aspect, the present invention provides a toothbrush comprising integral head, body and tail portions, wherein the head portion comprises indents into which have been inserted bristles that protrude from a front side of the toothbrush for cleaning the user's teeth and the tail portion comprises an indent into which has been permanently fixed a base of an interdental brush, the interdental brush protruding from a rear side of the toothbrush for cleaning the user's interdental spaces.

The permanent fixing of the interdental brush in the toothbrush reduces the complexity of the design and associated manufacturing costs. There are no moving or removable parts which could be broken or become lost.

A problem with permanently fixing an interdental brush into the tail portion of a toothbrush in order to create a dual head toothbrush, is how to prevent the interdental brush from becoming bent or damaged during shipping. In the earlier examples of Japanese Application Nos. 2002-336051, 2002-306245 and 2002-28029, the problem is not encountered because the interdental brushes are stored safely within the toothbrush body.

A solution to this problem is to incline the tail portion relative to the body portion towards the front side of the toothbrush. There is then space for the interdental brush to protrude without interference when the toothbrush is lying on its rear side, for example, in packaging. The interdental brush and tail portion may be sized to be not substantially greater in height than the head portion and main bristles (e.g., less than twice the height, preferably less than about one and a half times the length).

The toothbrush body is preferably made of a plastic material with rubber portions. These rubber portions improve the grip and comfort of the user. So that the same benefits can be felt in both operational positions

of the toothbrush, it is preferable that the rubber on the rear of the body portion extends substantially along the entire length of the portion. In this way, a grip is provided for the thumb and palm of the hand when the interdental brush is used.

It is preferable that all the rubber portions are interconnected so that they can be formed through a single injection moulding step.

A preferred embodiment of the present invention shall now be described with reference to the accompanying drawings, in which:

FIG 1 shows a side view of a toothbrush according to a preferred embodiment of the present invention;

FIG 2 shows a front view of the toothbrush of the embodiment;

FIG 3 shows a rear view of the toothbrush of the embodiment;

FIG 4 shows a side view of another embodiment;

FIG 5 shows a front view of the other embodiment; and

FIG 6 shows a rear view of the other embodiment.

A toothbrush 10 according to a preferred embodiment of the present invention comprises a head portion 12, a body portion 14 and a tail portion 16. The head portion 12 comprises bristles 18 protruding on the front side 19 of the toothbrush 10. These form the main brush which is used for standard brushing of the top, front and back of the teeth.

The body portion 14 of the toothbrush 10 can be shaped to provide comfort and improved grip to the user. In this instance, the portion 14 includes a rest 11 against which the user's thumb can abut during brushing with the main brush.

The tail portion 16 is inclined in respect to the head 12 and body 14 portions towards the front side 19 of the toothbrush 10. The front side of the tail portion 16 acts as a rest for the base of the user's

hand whilst brushing with the main brush. At the distal end of the tail portion 16 an interdental brush 13 protrudes from the rear side 20. This brush 13 protrudes at an angle just offset from the normal to the body portion 14 and comprises a narrow stem 13a from which rings of bristles 13b having a gradually increasing length project.

The interdental brush 13 is angled to facilitate the use of the brush 13 to clean areas of the mouth inaccessible or awkward to reach with the main brush, such as interdental areas and small gaps between teeth and braces. The angled tail portion 16 also acts as a rest against which the user's thumb or finger can abut during use of the interdental brush 13. Further by angling the tail portion 16 towards the front side 19, the toothbrush 10 can fit into a smaller volume than if the inclination was on the other direction. This makes the toothbrush 10 more compact which is beneficial for packaging and storing the brush.

The length of the body portion 14 is such that the bristles 18 of the head portion 12 do not come into contact with the hand of the user during use of the interdental brush 13 and vice versa.

The toothbrush 10 is made mainly of plastic but contains areas of rubber to increase the grip and comfort of the user. Specifically, rubber portion 15 is provided on and below the rest 11 for contact with the user's thumb whilst the main brush is in use.

Rubber portion 17, shown in FIG 3, extends along the entire length of the head and body portions 12, 14. This provides grip and added comfort for the user in each of the operational positions of the toothbrush.

FIGS 4 to 6 show a further embodiment of a toothbrush having a main brush and an interdental brush 13. In this embodiment, the head, body and tail portions 12, 14, 16 are of slightly different proportions and rubber portion 17 is reduced in length.

Like reference numerals have been used for the parts in this embodiment which correspond with those of the first embodiment.

5 Thus in at least a preferred embodiment, there is provided a dual head toothbrush having a main brush and an interdental brush integral with a dual component toothbrush body made of both plastic and rubber.